

WE CLAIM:

1. A fuel supply system for delivering fuel for an internal combustion engine, comprising a fuel tank, a first fuel pump (6), a second fuel pump (12), and at least one fuel injection valve (16), wherein the first fuel pump (6) delivers the fuel from the fuel tank into a fuel line connection (10) and the second fuel pump (12) delivers the fuel from the fuel line connection (10) by way of a fuel pressure line (14) to the fuel valve (16), via which the fuel travels at least indirectly into a combustion chamber of the engine, the first fuel pump (6) delivers the fuel into the fuel line connection (10) with a delivery capacity that is changed as a function of an operating condition of the engine.

2. The fuel supply system according to claim 1, in which the first fuel pump (6) is operated at a different speed.

3. The fuel supply system according to claim 1, in which for a startup of the engine, the first fuel pump (6) delivers the fuel into the fuel line connection (10) with an increased delivery capacity.

4. The fuel supply system according to claim 2, in which for a startup of the engine, the first fuel pump (6) delivers the fuel into the fuel line connection (10) with an increased delivery capacity.

5. The fuel supply system according to claim 3, in which for the startup of the engine, the first fuel pump (6) is operated with an overspeed.

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10)  
6. The fuel supply system according to claim 4, in which for the startup of the engine, the first fuel pump (6) is operated with an overspeed.

7. The fuel supply system according to claim 1, in which the first fuel pump (6) operates as a function of a fuel temperature.

8. The fuel supply system according to claim 2, in which the first fuel pump (6) operates as a function of a fuel temperature.

9. The fuel supply system according to claim 7, in which the first fuel pump (6) operates with greater delivery capacity in the event of higher fuel temperature.

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10. The fuel supply system according to claim 1, in which the first fuel pump (6) is driven by an electric motor (8), wherein the drive speed of the electric motor (8) is changed as a function of the operating conditions of the engine.

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11. The fuel supply system according to claim 2, in which the first fuel pump (6) is driven by an electric motor (8),

wherein the drive speed of the electric motor (8) is changed as a function of the operating conditions of the engine.

12. The fuel supply system according to claim 1, in which an electrical series resistor (62) is electrically connected in series with the electric motor (8).

13. The fuel supply system according to claim 2, in which an electrical series resistor (62) is electrically connected in series with the electric motor (8).

14. The fuel supply system according to claim 1, in which two pressure control valves (26, 28), which are hydraulically and functionally parallel and are set to different pressure values, are provided for monitoring a delivery pressure prevailing in the fuel line connection (10).

15. The fuel supply system according to claim 14, in which fuel flowing out of the fuel line connection (10) through the pressure control valves (26, 28) feeds into the fuel tank (2).

16. The fuel supply system according to claim 1, in which the first fuel pump (6) feeds as a function of an injection time of the at least one fuel valve (16).

(103) 17. The fuel supply system according to claim 1, in which the first fuel pump (6) feeds fuel under pressure as a function of a speed of the engine.

(102) 18. The fuel supply system according to claim 1, in which the first fuel pump (6) feeds fuel under pressure as a function of a pressure in the pressure line (14).

102 19. The fuel supply system according to claim 1, in which a valve device (30, 30c, 30d) is provided, which influences a delivery pressure in the fuel line connection (10) in an operationally dependent manner.

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(102) 20. The fuel supply system according to claim 19, in which the valve device (30, 30c, 30d) is provided in a fuel line (22) leading from the fuel line connection (10) into the fuel tank (2) and is disposed hydraulically and functionally in series with a pressure control valve (26).

1.9.3.0 21. The fuel supply system according to claim 19, in which the valve device (30, 30d) has a through flow resistance that depends on the through flow of the fuel passing through the valve device (30, 30d).

1.9.3.0 22. The fuel supply system according to claim 20, in which the valve device (30, 30d) has a through flow resistance that depends on the through flow of the fuel passing through the valve device (30, 30d).

23. The fuel supply system according to claim 19, in which the valve device (30, 30c) is an electrically switchable on-off valve (30c).

24. The fuel supply system according to claim 20, in which the valve device (30, 30c) is an electrically switchable on-off valve (30c).

25. The fuel supply system according to claim 21, in which the valve device (30, 30c) is an electrically switchable on-off valve (30c).